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| EXAMINER | |
|---|---|
| MAZUMDAR, SONYA | |

| ART UNIT | PAPER NUMBER |
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| 1791 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/728,048 | FERGUSON ET AL. | |
| | Examiner | Art Unit | |
| | SONYA MAZUMDAR | 1791 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 and 5-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/4/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Art Unit: 1791

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on December 4, 2007 was filed after the mailing date of the Office Action on August 20, 2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Response to Arguments*

2. Applicant's arguments, see pages 5 through 7, filed December 4, 2007, with respect to the rejections of claims 1-5 and 7 under 35 USC 103(a) have been fully considered but are not persuasive. The declaration is defective because it does not state that Neri et al. (US 2002/0131062) and the instant application are commonly owned by the same entity.

Also, upon further consideration and submission of the information disclosure statement, a new grounds of rejection is made in view of Neri et al. (WO 02/072301)

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being obvious over Neri et al. (US 2002/0131062) in view of Usuki et al. (US 6,316,385) and Rees (US 3,624,272).

With respect to claims 1, 4, and 5, Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by an image carrier sheet. A flexible membrane of silicone rubber is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements, in a substantially U-shaped configuration, to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; paragraphs 0006-0007; Figure 6).

Neri et al. fail to teach using a printed transfer element of a certain composition. Usuki et al. teach using a thermal transfer dye-receptive sheet comprising a substrate sheet and a dye receptive layer, where the substrate sheet further comprises an ionomer film (abstract; column 6, lines 14-25). Rees teaches an ionomer film commonly known as Surlyn, comprising: an α-olefin having the formula $R\text{-}CH{=}CH_2$, where R is wither hydrogen or an alkyl radical having from 1 to 8 carbon atoms; an α,β-ethylenically unsaturated carboxylic acid group containing a monomer having 3 to 8 carbon atoms,

and a metal ion being sufficient to neutralize at least 10% of the carboxylic acid group (column 1, line 69 – column 2, line 23; column 2, lines 40-42).

It would have been obvious to Neri et al. to use a transfer element in transfer printing as Usuki et al. and Rees taught and would have been motivated to do so to have a film that does not evolve any by-product compounds during heating, and therefore having an environmentally friendly transfer element.

With respect to claim 7, Neri et al. teaches that an image carrier sheet is heated to make it more flexible after a flexible membrane is lowered over the carrier sheet and prior to establishing a vacuum (abstract).

5. Claims 1, 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being obvious over Neri et al. (WO 02/072301) in view of Usuki et al. (US 6,316,385) and Rees (US 3,624,272).

With respect to claims 1, 4, and 5, Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by an image carrier sheet. A flexible membrane of silicone rubber is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements, in a substantially U-shaped configuration, to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; paragraphs 06-0007; Figure 6).

Neri et al. fail to teach using a printed transfer element of a certain composition. Usuki et al. teach using a thermal transfer dye-receptive sheet comprising a substrate sheet and a dye receptive layer, where the substrate sheet further comprises an ionomer

film (abstract; column 6, lines 14-25). Rees teaches an ionomer film commonly known as Surlyn, comprising: an α-olefin having the formula R-CH=$CH_2$, where R is wither hydrogen or an alkyl radical having from 1 to 8 carbon atoms; an α,β-ethylenically unsaturated carboxylic acid group containing a monomer having 3 to 8 carbon atoms, and a metal ion being sufficient to neutralize at least 10% of the carboxylic acid group (column 1, line 69 – column 2, line 23; column 2, lines 40-42).

It would have been obvious to Neri et al. to use a transfer element in transfer printing as Usuki et al. and Rees taught and would have been motivated to do so to have a film that does not evolve any by-product compounds during heating, and therefore having an environmentally friendly transfer element.

With respect to claim 7, Neri et al. teaches that an image carrier sheet is heated to make it more flexible after a flexible membrane is lowered over the carrier sheet and prior to establishing a vacuum (abstract).

6. Claims 1, 2, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hastie et al. (WO 01/96123) in view of Usuki et al., Rees, and Neri et al. (US 2002/0131062)

With respect to claims 1, 5, 6, and 7, Hastie et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a printed transfer element (abstract; page 1, paragraph 1). The printed transfer element is placed over the object, which has a receptor coating, and is heated to make it more flexible. The transfer element is vacuum formed onto the surface and heated to at least partially

transfer the image from the transfer element to the object (abstract; page 2, paragraph 5 – page 3, paragraph 2; page 4, paragraph 1).

Hastie et al. fail to teach using a printed transfer element of a certain composition. Usuki et al. teach using a thermal transfer dye-receptive sheet comprising a substrate sheet and a dye receptive layer, where the substrate sheet further comprises an ionomer film (abstract; column 6, lines 14-25). Rees teaches an ionomer film commonly known as Surlyn, comprising: an α-olefin having the formula R-CH=$CH_2$, where R is wither hydrogen or an alkyl radical having from 1 to 8 carbon atoms; an α,β-ethylenically unsaturated carboxylic acid group containing a monomer having 3 to 8 carbon atoms, and a metal ion being sufficient to neutralize at least 10% of the carboxylic acid group (column 1, line 69 – column 2, line 23; column 2, lines 40-42).

It would have been obvious to Hastie et al. to use a transfer element in transfer printing as Usuki et al. and Rees taught and would have been motivated to do so to have a film that does not evolve any by-product compounds during heating, and therefore having an environmentally friendly transfer element.

Furthermore, Hastie et al. do not specifically teach using a flexible membrane over a printed transfer layer atop a three-dimensional surface. Neri et al. teach establishing a vacuum, and heating a membrane, image carrier sheet, and object by radiant heating elements, in a substantially U-shaped configuration, to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (Neri: abstract; paragraphs 0006-0007; Figure 6).

It would have been obvious for Hastie et al. to teach using a flexible membrane used in the vacuum forming step in transfer printing as Neri et al. taught and would

have been motivated to do so to vacuum form surfaces of different shapes and sizes, and furthermore, the flexible membrane is matched with the heating elements so that it is specifically absorptive to radiation within the wavelength range emitted therefrom to achieve optimum heating efficiency (Neri: paragraph 0006).

7. Claims 1, 2, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hastie et al. in view of Usuki et al., Rees, and Neri et al. (WO 02/072301)

With respect to claims 1, 5, 6, and 7, Hastie et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a printed transfer element (abstract; page 1, paragraph 1). The printed transfer element is placed over the object, which has a receptor coating, and is heated to make it more flexible. The transfer element is vacuum formed onto the surface and heated to at least partially transfer the image from the transfer element to the object (abstract; page 2, paragraph 5 – page 3, paragraph 2; page 4, paragraph 1).

Hastie et al. fail to teach using a printed transfer element of a certain composition. Usuki et al. teach using a thermal transfer dye-receptive sheet comprising a substrate sheet and a dye receptive layer, where the substrate sheet further comprises an ionomer film (abstract; column 6, lines 14-25). Rees teaches an ionomer film commonly known as Surlyn, comprising: an α-olefin having the formula R-CH=$CH_2$, where R is wither hydrogen or an alkyl radical having from 1 to 8 carbon atoms; an α,β-ethylenically unsaturated carboxylic acid group containing a monomer having 3 to 8 carbon atoms, and a metal ion being sufficient to neutralize at least 10% of the carboxylic acid group (column 1, line 69 – column 2, line 23; column 2, lines 40-42).

It would have been obvious to Hastie et al. to use a transfer element in transfer printing as Usuki et al. and Rees taught and would have been motivated to do so to have a film that does not evolve any by-product compounds during heating, and therefore having an environmentally friendly transfer element.

Furthermore, Hastie et al. do not specifically teach using a flexible membrane over a printed transfer layer atop a three-dimensional surface. Neri et al. teach establishing a vacuum, and heating a membrane, image carrier sheet, and object by radiant heating elements, in a substantially U-shaped configuration, to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (Neri: abstract; paragraphs 06-07; Figure 6).

It would have been obvious for Hastie et al. to teach using a flexible membrane used in the vacuum forming step in transfer printing as Neri et al. taught and would have been motivated to do so to vacuum form surfaces of different shapes and sizes, and furthermore, the flexible membrane is matched with the heating elements so that it is specifically absorptive to radiation within the wavelength range emitted therefrom to achieve optimum heating efficiency (Neri: paragraph 06).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (US 2002/0131062) in view of Usuki et al. and Rees, as applied to claim 1, and further in view of Williams et al. (US 2003/0008116).

The teachings of claim 1 are as described above.

With respect to claim 2, Neri et al. fail to teach a printed transfer element comprising an intermediate barrier layer interposed between a dye-receptive layer and a

film substrate. Williams et al. teach using an image transfer sheet with a barrier layer coated on a support layer (paragraphs 0046 and 0047).

It would have been obvious to Neri et al. to use a transfer element with an intermediate barrier layer as Neri et al. taught and would have been motivated to do so to allow better release of the image layer from the support layer (Williams: paragraph 0047).

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (US 2002/0131062) in view of Usuki et al. and Rees, as applied to claim 1, and further in view of Narita et al. (US 6,165,938).

The teachings of claim 1 are as described above.

Although Usuki et al. teach a dye-receptive layer with a resin binder (column 6, lines 33-46), the combined teachings of Neri et al., Usuki et al., and Rees do not specifically teach a dye receptive layer comprising a polymeric film-forming binder and pigment. Narita et al. teach an image-receiving thermal transfer sheet where the dye-receptive layer comprises pigments (Narita: column 3, line 66 – column 4, line 6).

It would have been obvious to teach using a pigment-binder as a dye receptive layer as Narita et al. taught and would have been motivated to do further enhance the sharpness of the image that is transferred (Narita: column 4, lines 2-4).

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (US 2002/0131062) in view of Usuki et al., Rees, and Durand as applied to claim 1 above, and further in view of Gibbs et al. (US 3,888,719)

The teachings of claim 1 are as described above.

The combined teachings of Neri et al., Usuki et al., Rees, and Durand do not specifically teach using a flexible membrane made of silicon rubber. Gibbs et al. teach using a vacuum press where one surface is flexible and made of silicon rubber (column 3, lines 56-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flexible membrane made of silicon rubber and would have been motivated to do so to have a wall that is flexible and air-permeable to conform to any three-dimensional object of any shape or size.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (WO 02/072301) in view of Usuki et al. and Rees, as applied to claim 1, and further in view of Williams et al. (US 2003/0008116).

The teachings of claim 1 are as described above.

With respect to claim 2, Neri et al. fail to teach a printed transfer element comprising an intermediate barrier layer interposed between a dye-receptive layer and a film substrate. Williams et al. teach using an image transfer sheet with a barrier layer coated on a support layer (paragraphs 0046 and 0047).

It would have been obvious to Neri et al. to use a transfer element with an intermediate barrier layer as Neri et al. taught and would have been motivated to do so to allow better release of the image layer from the support layer (Williams: paragraph 0047).

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (WO 02/072301) in view of Usuki et al. and Rees, as applied to claim 1, and further in view of Narita et al. (US 6,165,938).

The teachings of claim 1 are as described above.

Although Usuki et al. teach a dye-receptive layer with a resin binder (column 6, lines 33-46), the combined teachings of Neri et al., Usuki et al., and Rees do not specifically teach a dye receptive layer comprising a polymeric film-forming binder and pigment. Narita et al. teach an image-receiving thermal transfer sheet where the dye-receptive layer comprises pigments (Narita: column 3, line 66 – column 4, line 6).

It would have been obvious to teach using a pigment-binder as a dye receptive layer as Narita et al. taught and would have been motivated to do further enhance the sharpness of the image that is transferred (Narita: column 4, lines 2-4).

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (WO 02/072301) in view of Usuki et al., Rees, and Durand as applied to claim 1 above, and further in view of Gibbs et al. (US 3,888,719)

The teachings of claim 1 are as described above.

The combined teachings of Neri et al., Usuki et al., Rees, and Durand do not specifically teach using a flexible membrane made of silicon rubber. Gibbs et al. teach using a vacuum press where one surface is flexible and made of silicon rubber (column 3, lines 56-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flexible membrane made of silicon rubber and would have

been motivated to do so to have a wall that is flexible and air-permeable to conform to any three-dimensional object of any shape or size.

## *Conclusion*

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on December 4, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONYA MAZUMDAR whose telephone number is (571)272-6019. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SM

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791